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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

RYMAN, DANIEL J

ART UNIT PAPER NUMBER

2616

DATE MAILED: 07/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/843,553

Applicant(s)

ODENWALDER ET AL.

Examiner

Daniel J. Ryman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-15 is/are allowed.
- 6) ☒ Claim(s) 1 and 8 is/are rejected.
- 7) ☒ Claim(s) 2-7, 9, 13 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Examiner acknowledges Applicant's filing of an RCE on 5/22/2006. Examiner also acknowledges that Applicant's amendments to the Specification have overcome Examiner's objections.
2. Applicant's arguments with respect to claims 1 and 8 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claim 9 is objected to because of the following informalities: in lines 5-6, the claim recites "preamble channel which is separate from a traffic channel". It is unclear whether this "preamble channel" is the same as the preamble channel recited in the other lines of the claims. Applicant should move the "which is separate from a traffic channel" limitation from the "preamble channel" located in line 5 to the "preamble channel" located in line 2. Simply, Applicant should change "preamble channel" in line 2 to "preamble channel which is separate from a traffic channel". In addition, Applicant should change "preamble channel which is separate from a traffic channel" in lines 5-6 to "preamble channel". Appropriate correction is required.
4. Claim 13 is objected to because of the following informalities: in line 1, "the preamble information" should be "preamble information". Appropriate correction is required.

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5. Claim 15 is objected to because of the following informalities: in line 1, "the preamble information" should be "preamble information". Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 2002/0105929) in view of Neufeld (USPN 6,278,703) in further view of Stewart et al. (USPN 6,169,731) in further view of Mahany (USPN 6,018,555), of record.

8. Regarding claim 1, Chen discloses an apparatus in a remote station (ref. 168, 170) for receiving a preamble channel (Figs. 1B, 1E and ¶¶ 59, 82, where the preamble channel is transmitted to the receiver station such that the receiver station has an apparatus for receiving the preamble channel), comprising: a preamble size detection element for determining a number of chips occupied by a preamble sequence on the preamble channel (¶ 91, where the preamble varies from 128 chips to 1024 chips such that the receiver would have to determine the size of a given preamble) which is separate from a traffic channel (Figs. 1B, 1E, where the "preamble channel" is distinct from the "traffic channel").

Chen does not expressly disclose that the determining element determines the number of slots occupied by a preamble sequence since Chen's preamble sequence is

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smaller than a single slot (§ 91, where the preamble varies from 128 chips to 1024 chips, and where a single slot is 1536 chips, § 67, such that the preamble only occupies a single slot). However, Chen does disclose that the preamble sequence varies in size (§ 91, where the preamble varies from 128 chips to 1024 chips). It is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on Appellant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Thus, at the time of the invention, it would have been obvious to one of ordinary skill in the art to have the preamble sequence occupy any number of slots since it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value.

Chen does not expressly disclose that the apparatus in the remote station is for decoding a preamble channel. However, Chen does disclose that the mobile terminals perform decoding (§ 70, where “[t]he pilot channel is used for . . . decoding . . . by all wireless terminals in the coverage area”). Neufeld teaches, as prior art in a CDMA system, that preambles are used to initialize a decoder, where “[d]igital wireless signals

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are usually encoded for various reasons” (col. 2, lines 16-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the apparatus in the remote station for decoding a preamble channel as a way to initialize a decoder.

Chen in view of Neufeld does not expressly disclose that the preamble size detection element outputs a potential preamble sequence. Stewart teaches, in a CDMA communication system (col. 4, lines 17-21), having a preamble detection element output a potential preamble sequence (recovered information bits) where this potential preamble sequence is compared to a known sequence (all-zeros) to determine if the preamble has been successfully decoded (col. 8, lines 35-43, where “[i]f fewer than L1 (a typical value would be 140) of the 172 information bits recovered . . . are demodulated as zero [the expected preamble sequence], . . . phase 2 of the preamble acquisition procedure 400 is re-entered” such that acquisition is only successful if a low number of “ones” are received). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the preamble size detection element output a potential preamble sequence in order to allow the receiver to determine if the detected preamble sequence is “correct”.

Chen in view of Neufeld in further view of Stewart does not expressly disclose having a plurality of size detection elements where each of the plurality of preamble size detection elements outputs a best path metric or having a selection element for choosing a true preamble sequence from the potential preamble sequences output from the plurality of detection elements. Rather, Chen in view of Neufeld in further view of

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Stewart suggests that using a single preamble detection unit that performs a “non-directed” search over all possible sizes to detect the best “potential” preamble (Stewart: col. 7, lines 17-22, where a “non-directed” search does not have a-priori knowledge of the preamble such that if the size of the preamble is not known a-priori then all sizes would have to be searched). Mahany teaches, in a system for preamble detection, using multiple parallel detectors in order to quickly detect a particular type of preamble sequence (col. 9, lines 48-54). Mahany also suggests that a selection element chooses a true preamble sequence from the potential preamble sequences based on signaling from the preamble detectors (col. 2, lines 30-35 and col. 11, lines 54-59, where the system measures preamble quality to determine which preamble is the “correct” preamble, such that this quality metric indicates the “best path”). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have a plurality of preamble size detection elements, wherein each of the plurality of preamble size detection elements outputs a best path metric and to have a selection element for choosing a true preamble sequence from the potential preamble sequences output from the plurality of detection elements in order to quickly detect a particular type of preamble sequence.

9. Regarding claim 8, Chen in view of Neufeld in further view of Stewart in further view of Mahany discloses the selection element is further for determining the number of slots occupied by a data subpacket on a non-preamble channel, wherein the number of slots occupied by the data subpacket is carried by the true preamble sequence (Chen: ¶

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78, where "transmission parameters for the data packet" presumably includes the length of the packet since the data packets vary in length, ¶ 91).

Allowable Subject Matter

10. Claims 2-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or fairly suggest having a plurality of de-interleavers performing de-interleaving over a predetermined number of slots, where each de-interleaver operates over a different predetermined number of slots. Examiner notes that these limitations imply that the preamble channel will vary in size according to the increment of a slot, i.e. preamble length = $B \times \text{slot length}$, where B is a whole number. While Chen discloses that the preamble channel varies in size (¶ 91), Chen fails to disclose that the preamble will vary according to the increment of a slot. In addition, while interleaving of a preamble channel is known in the art, see e.g., Szczutkowski et al. (USPN 4,757,536) at col. 7, lines 14-28, Chen discloses that the preamble "initially consists of all 0's" (¶ 85) where the signal is mapped and then covered using a user index/Group ID. It would not have been obvious to one of ordinary skill in the art at the time of the invention to interleave a signal consisting of all 0's since the interleaving would have no effect on the final signal. Simply, interleaving a signal consisting of all 0's would result in a signal consisting of all 0's. Further, it would not have been obvious to one of ordinary skill in the art at the time of the invention to interleave the covered signal since the cover is used to differentiate

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between different users such that interleaving of the cover could lead to the failure of the cover to properly differentiate between different users.

11. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or fairly suggest determining the number of slots occupied by a data subpacket on a non-preamble channel, wherein this number is associated with the number of slots occupied by the true preamble sequence. While Chen discloses that the length of the preambles vary and that the length of the data packets vary (Chen: ¶ 91), Chen does not disclose that there is a relationship between the length of the data packet, in slots, and the length of the preamble, in slots.

12. Claims 9-15 are allowed. The prior art does not disclose or fairly suggest de-interleaving, as outlined in the Indication of Allowability for claims 2-6.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Daniel J Ryman
Examiner
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